



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,720	01/13/2006	Koichiro Kishima	450101-04870.1	2419

7590 10/11/2007
William Frommer
Frommer Lawrence & Haug
745 Fifth Avenue
New York, NY 10151

EXAMINER

NHU, DAVID

ART UNIT	PAPER NUMBER
----------	--------------

2818

MAIL DATE	DELIVERY MODE
-----------	---------------

10/11/2007

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/540,720

Applicant(s)

KISHIMA ET AL.

Examiner

David Nhu

Art Unit

2818

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12 September 2007.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) 8-10 and 18-20 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,2 and 4-7 is/are rejected.
- 7) ☐ Claim(s) 11-17 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date 6/24/05.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAIL ACTIONS

Election/Restrictions

1. Applicant's election of Group I (Claims 1-7, 11-17) with traverse is acknowledge. Claims 1-7, 11-17 are remained for examination. Accordingly, claims 8-10, 18-20 are withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

Because Applicant did not distinctly and specifically point out the supposed error in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)). Applicants have the right to file a divisional, continuation or continuation-in-part application covering the subject matter of the non-elected claims. The traversal is on the ground(s) that see the election paper. This is not found persuasive because the fields of search for method' and device claims are NOT coextensive and the determinations of patentability of method and device claims are different, that is process limitations and device limitations are given weight differently in determining the patentability of the claimed inventions. Also, the strategies for doing text searching of the device claims and method claims are different. Thus, separate searches are required.

The requirement is still deemed proper and is therefore made **FINAL**.

Specifications

2. Insert --This application is a 371 of PCT/JP 04/16188 filed 10/25/2004—in Technical Field of the specifications

Claims Objection

3. Claims 1, 11, "a mask forming step of forming a mask on a major surface..." should be --forming a mask on a major surface...--; "an ion implantation step of implanting oxygen ions to..." should be --implanting oxygen ions to...--; "a surface protection layer forming step of forming a surface protection layer that..." should be --forming a surface protection layer that ...--; "a heat treatment step of forming a silicon dioxide layer in the single crystal silicon by heat treatment..." should be --forming a silicon dioxide layer in the single-crystal silicon by heat treatment--; "a removal step of removing the mask and the surface protection layer..." should be --removing the mask and the surface protection layer...--; "a polishing step of polishing the major surface by a predetermined quantity" should be --polishing the major surface by a predetermined quantity--

Claims 1, 11, "in the single crystal silicon by" should be --in the single crystal silicon substrate by--

Claim 2, the masks" should be --the mask--

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Art Unit: 2818

5. Claims 1- 2, 4-7 are rejected under 35 U.S.C. 102(b) as being anticipated by Sugawara (4,968,636), Sakaguchi et al (6,350,703 B1).

Regarding claim 1, Sugawara, (see figures 2a-2f, col. 6, lines 50-67, col. 7, 8, lines 1-67, col. 9, lines 1-38), teaches a method for manufacturing a semiconductor substrate characterized by comprising: forming a mask 143 on a major surface of a single crystal silicon substrate 111 (see figure 2a); implanting oxygen ions to the major surface (see figure 2b); forming a surface protection layer 155 blocks oxygen on the major surface (see figure 2e); forming a silicon dioxide layer 147 in the single crystal silicon substrate by heat treatment (see figures 2d); and removing the mask and the surface protective layer from the single crystal silicon substrate (see figure 2f).

Regarding claim 1, Sakaguchi, (see figures 5A-5F, 6A-6E, col. 10, lines 60-67, col. 11, lines 1-67, col. 12, lines 1-11), teaches a method for manufacturing a semiconductor substrate characterized by comprising: forming a mask on a major surface of a single crystal silicon substrate 51, 61 (see figures 5B, 6A); implanting oxygen ions to the major surface (see figures 5C, 6B); forming a surface protection layer 53, 63 blocks oxygen on the major surface (see figure 5B, 6A); forming a silicon dioxide layers 55, 65 in the single crystal silicon substrate by heat treatment (see figures 5D, 6C); and removing the mask and the surface protective layer from the single crystal silicon substrate (see figures 5F, 6E).

Regarding claims 2, 4-7, Sugawara, (see figures 2a-2f, 6a-6c), Sakaguchi, (see figures 5A-5F, 6A-6E), teaches the silicon dioxide layer 147 has a pattern; the mask is made of silicon oxide; forming a silicon oxide layer with a thickness by thermally oxidizing the single crystal silicon

Art Unit: 2818

substrate, and removing a part of the silicon oxide layer by etching; the acceleration energy in the ion implantation ; forming a silicon nitride layer thinner than the silicon dioxide layer.

Allowable Subject Matter

6. Claim 3 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

7. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure: Yamazaki'264 is cited as of interest.

8. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the date of this letter. Failure to respond within the period for response will cause the application to become abandoned (see 710.02 (b)).

9. Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Nhu, (571)272-1792. The examiner can normally be reached on Monday-Friday from 7:30 AM to 5:00 PM.

The fax phone number for the organization where this application or proceeding is assigned is (571)273-8300.

Information regarding the status of an application may be obtained from the patent application information retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR

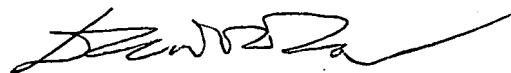
Application/Control Number: 10/540,720

Page 6

Art Unit: 2818

system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Nhu



September 17, 2007

/